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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,450	01/13/2005	Johannes de Graauw	7389/84086	3682
42798	7590	05/26/2009	EXAMINER	
FITCH, EVEN, TABIN & FLANNERY			MANOHARAN, VIRGINIA	
P. O. BOX 18415				
WASHINGTON, DC 20036			ART UNIT	PAPER NUMBER
			1797	
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			05/26/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/502,450	DE GRAAUW ET AL.
	Examiner	Art Unit
	Virginia Manoharan	1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 February 2009.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 21-43 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 21-43 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Claims 21-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The following claimed languages such as:

- a). The negative proviso such as “..without transferring mass between the first and second inner volumes” recited in claim 21 {compare with the specification, paragraph [0012] reciting “... At this time, the mass transfer occurs, and hence the distillation operation is performed”}; and
- b). “generally straight wall” in claim 30 both are nowhere in the specification. However, if proper support can be pointed- out, at least the specification fails to provide proper antecedent basis for the above claimed subject matter since they are not positively recited in the specification. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Applicants should further check the amendments such that care must be exercised to avoid introduction of anything which could be construed to be new matter prohibited by 35 U.S.C. 132 and 37 CFR 1.121.

Claims 21- 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- 1). Claims 22-41 are incomplete claims as they depend on cancelled claims 1-20.

2). Claim 41 provides for the use of a heat integrated distillation column and providing a heat exchanger, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

3). The method of claim 42 is at odds with the apparatus recited in the preamble of claim 21, the claim from which it depends. Two different statutory subject matter are being claimed in the same claim.

Claims 33, 38, 40 and 43 are objected to because of the following reasons:

a).Claim 33 recites the limitation "the simultaneous general increase and general decrease" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

b). Claims 38, 40 and 43, as recited, are in improper Markush languages.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-23 and 26-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herron et al (5,592,832).

Herron is applied for the same reasons as set forth at page 5, first full paragraph of the previous Office Action.

Claims 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants' arguments filed February 9, 2009 have been fully considered but they are not persuasive.

Applicants' arguments such as : "particularly, U.S. Patent No. 5,592,832 issued to Herron does not disclose, at least, an outer shell with a first and second inner volume therein, a dividing wall, nor a heat exchanger fluidly connected to one of the first and second inner volumes to further exchange heat between the first and second inner volumes without transferring mass between the first and second inner volumes. Instead, the '832 reference is directed to cryogenic distillation of air using deplegmatation" are considered well-taken. Contrary to applicants' assertion, the body shell 1 of Herron would read on the claimed outer shell. Figs. 5 and 6 of Herron show elements (5) and (6) corresponding to the argued first and second inner volumes, vice versa, having a dividing wall between the elements. Furthermore, Fig. 11 shows heat exchangers being connected to the argued first and second inner volumes. That Heron is directed to cryogenic distillation of air is of no patentable moment. Although not required by the claims, it is not excluded therefrom.

Thus, in the absence of anything which may be "new" or "unexpected result." a *prima facie* case of obviousness has been reasonably established by the art and has not been rebutted. Unexpected results must be established by factual evidence. Mere arguments or conclusory statements in the specification, applicants' amendments, or

the Brief do not suffice. In re Linder, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1872). In re Wood, 582, F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 571-272-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Calderola, can be reached on 571-272-1444.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Virginia Manoharan/
Primary Examiner, Art Unit 1797